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CLAIMS

1. A compound of formula I, or a pharmaceutically acceptable salt thereof,

$$\begin{array}{c|c}
R^1 & R^2 \\
N & S \\
R^5 & Z^1 \\
R^6 & N & H
\end{array}$$

wherein:

Z¹ is N or CH;

 Z^2 and Z^3 are each independently N or CR^7 ;

R¹, R², R³, R⁴, R⁵, R⁶, and R⁷ are each independently H, R⁸, or R⁹;

each R8 is independently a hydrocarbyl group; and

each R⁹ is independently halo, NO₂, alkoxy, CN, CF₃, SO₃H, SO₂NR¹⁰R¹¹, SO₂R¹²,

 $NR^{13}R^{14}$, $(CH_2)_aCOOR^{15}$, $(CH_2)_bCONR^{16}R^{17}$, $(CH_2)_cCOR^{18}$ or $(CH_2)_dOH$;

a, b, c and d are each independently 0, 1 2 3 or 4;

 R^{10-18} are each independently H or alkyl;

provided that when R1 and R2 are both H,

 Z^1 is CH; or

 Z^2 is N; or

 Z^1 is CH and Z^2 is N;

and wherein the compound is other than 4-(4,5-dimethylthiazol-2-yl)-N-(3,4,5-trimethoxyphenyl)-2-pyrimidineamine or 4-(5-(2-hydroxyethyl)-4-methylthiazol-2-yl)-N-(3,4,5-trimethoxyphenyl)-2-pyrimidineamine.

2. A compound according to claim 1 wherein each R⁸ is independently a C₁₋₃₀ hydrocarbyl group, optionally containing up to twelve heteroatoms selected from N, S, and O, and optionally bearing up to six substituents each independently selected from halo, NO₂, CN, CF₃, SO₃H, SO₂NH₂, SO₂Me, OH, NH₂, COOH, and CONH₂.

- 3. A compound according to claim 1 or claim 2 wherein each R⁸ is independently an alkyl group, an aryl group or a cycloheteroalkyl group.
- 4. A compound according to claim 1 or claim 2 wherein each R⁹ is independently halo, NO₂, alkoxy, CN, CF₃, SO₃H, SO₂NH₂, SO₂Me, OH, NH₂, (CH₂)_aCOOR¹⁵, (CH₂)_dOH, CONH₂ or COR¹⁸.
- 5. A compound according to any preceding claim wherein:

 R^1 is H, alkyl, aryl, $(CH_2)_aCOOR^{15}$ or OH;

R² is H, (CH₂)_dOH, (CH₂)_aCOOR¹⁵, COR¹⁸ or alkyl;

R³ is halo, H, alkoxy, cycloheteroalkyl, alkyl or OH;

R4 is H, NH2, OH, alkyl, CF3 or NO2; and

R⁵ and R⁶ are both H.

6. A compound according to any preceding claim wherein:

R¹ is H, Me, Ph, CH₂COOMe or OH;

R² is H. (CH₂)₂OH, COOEt, COMe or Me;

R³ is Cl, H, OMe, N-morpholinyl, N-pyrrolidinyl, Me or OH;

R4 is H, NH2, OH, Me, CF3 or NO2; and

R⁵ and R⁶ are both H.

- 7. A compound according to claim 1 wherein Z^1 is CH and Z^2 and Z^3 are each independently N or CR^7 .
- 8. A compound according to claim 7 wherein Z^2 and Z^3 are each independently \mathbb{CR}^7 .
- 9. A compound according to claim 7 or claim 8 wherein;

R¹ is alkyl or OH;

R² is alkyl or COR¹⁸;

R³ is OH or halo; and

 Z^2 and Z^3 are both CH.

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- 10. A compound according to claim 9 wherein R¹ is Me or OH, R² is COMe or Me, and R³ is OH or Cl.
- 11. A compound according to claim 1 wherein Z^1 is N and Z^2 and Z^3 are each independently N or \mathbb{CR}^7 .
- 12. A compound according to claim 11 wherein Z^2 and Z^3 are each independently \mathbb{CR}^7 .
- 13. A compound according to claim 12 wherein:

R¹ is alkyl, aryl, OH or (CH₂)_aCOOR¹⁵;

R² is COR¹⁸, H, COOR¹⁵ or alkyl;

R³ is halo, H, OH, alkyl or morpholino;

R4 is H, NH2, OH, CF3 or NO2; and

 Z^2 and Z^3 are both CH.

14. A compound according to claim 13 wherein:

R¹ is Me, Ph, OH or CH₂COOMe;

R² is COMe, H, COOEt or Me; and

R³ is halo, H, OH, alkyl or morpholino.

- 15. A compound according to claim 11 wherein Z^2 is N and Z^3 is CR^7 .
- 16. A compound according to claim 15 wherein:

R¹ is H, OH or alkyl;

R² is H, (CH₂)_dOH, alkyl, (CH₂)_aCOOR¹⁵, COR¹⁸;

R³ is halo, alkoxy or heterocycloalkyl;

R4 is H or alkyl; and

 Z^3 is CH.

17. A compound according to claim 16 wherein:

R¹ is H, OH or Me;

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 R^2 is H, $(CH_2)_2OH$, Me, COOEt, COMe; R^3 is halo, OMe or N-pyrrolidinyl; R^4 is H or Me; and Z^3 is CH.

- 18. A compound according to claim 1 which is selected from the following:

 1-{2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-4-methyl-thiazol-5-yl}-ethanone
 (4-Chloro-phenyl)-[4-(4-methyl-thiazol-2-yl)-pyrimidin-2-yl]-amine
 (4-Chloro-phenyl)-[4-(4-phenyl-thiazol-2-yl)-pyrimidin-2-yl]-amine
 2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-4-methyl-thiazol-5-carboxylic acid
 ethyl ester
- {2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-thiazol-4-yl}-acetic acid methyl ester 2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic acid ethyl ester
- N-[4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-benzene-1,3-diamine
 3-[4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-ylamino]-phenol
 [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(3-trifluoromethyl-phenyl)-amine
 (4-Chloro-3-trifluoromethyl-phenyl)-[4-(4,5-dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-amine
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(3-nitro-phenyl)-amine
 (6-Methoxy-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
 (6-Chloro-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
 1-{2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-4-methyl-thiazol-5-yl}-
- ethanone
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(6-methoxy-pyridin-3-yl)-amine (6-Chloro-pyridin-3-yl)-[4-(4,5-dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-amine
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(4-morpholin-4-yl-phenyl)-amine
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(4-methyl-3-nitro-phenyl)-amine
- 4-[4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-ylamino]-phenol
- $\hbox{$2$-[2-(4-Chloro-phenylamino)-pyridin-4-yl]-5-methyl-thiazol-4-ol}$
- (6-Pyrrolidin-1-yl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic

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acid ethyl ester

- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-methyl-thiazol-4-ol
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-(2-hydroxy-ethyl)-thiazol-4-ol (6-Chloro-5-methyl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine.
- 19. A compound according to claim 1 which is selected from the following: 2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic acid ethyl ester;
- N-[4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-benzene-1,3-diamine
- 3-[4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-ylamino]-phenol
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(3-trifluoromethyl-phenyl)-amine
- (4-Chloro-3-trifluoromethyl-phenyl)-[4-(4,5-dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-amine
- (6-Methoxy-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- (6-Chloro-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- [4-(4,5-Dimethyl-thiazol-2-yl)-pyrimidin-2-yl]-(6-methoxy-pyridin-3-yl)-amine
- 2-[2-(4-Chloro-phenylamino)-pyridin-4-yl]-5-methyl-thiazol-4-ol
- (6-Pyrrolidin-1-yl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic acid ethyl ester
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-methyl-thiazol-4-ol
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-(2-hydroxy-ethyl)-thiazol-4-ol
- (6-Chloro-5-methyl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine.
- 20. A compound according to claim 1 which is selected from the following:
- 2-[2-(4-Chloro-phenylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic acid ethyl ester;
- (6-Methoxy-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine; and
- (6-Chloro-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- 2-[2-(4-Chloro-phenylamino)-pyridin-4-yl]-5-methyl-thiazol-4-ol
- (6-Pyrrolidin-1-yl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-4-hydroxy-thiazole-5-carboxylic

acid ethyl ester

- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-methyl-thiazol-4-ol
- 2-[2-(6-Chloro-pyridin-3-ylamino)-pyrimidin-4-yl]-5-(2-hydroxy-ethyl)-thiazol-4-ol (6-Chloro-5-methyl-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine
- 21. A compound according to claim 1 which is (6-Chloro-pyridin-3-yl)-(4-thiazol-2-yl-pyrimidin-2-yl)-amine.
- 22. A pharmaceutical composition comprising a compound according to any preceding claim admixed with a pharmaceutically acceptable diluent, excipient or carrier.
- 23. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating a proliferative disorder.
- 24. Use according to claim 23 wherein the proliferative disorder is cancer or leukemia.
- 25. Use according to claim 23 wherein the proliferative disorder is glomerulonephritis, rheumatoid arthritis, psoriasis or chronic obstructive pulmonary disorder.
- 26. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating a viral disorder.
- 27. Use according to claim 23 wherein the viral disorder is selected from human cytomegalovirus (HCMV), herpes simplex virus type 1 (HSV-1), human immunodeficiency virus type 1 (HIV-1), and varicella zoster virus (VZV).
- 28. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating a CNS disorder.

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- 29. Use according to claim 28 wherein the CNS disorder is Alzheimer's disease or bipolar disorder.
- 30. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating alopecia.
- 31. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating a stroke.
- 32. Use according to any one of claims 23 to 31 wherein the compound is administered in an amount sufficient to inhibit at least one PLK enzyme.
- 33. Use according to claim 32 wherein the PLK enzyme is PLK1.
- 34. Use according to any one of claims 23 to 31 wherein the compound is administered in an amount sufficient to inhibit at least one CDK enzyme.
- 35. Use according to claim 34 wherein the CDK enzyme is CDK1, CDK2, CDK3, CDK4, CDK6, CDK7, CDK8 and/or CDK9.
- 36. Use according to any one of claims 23 to 31 wherein the compound is administered in an amount sufficient to inhibit aurora kinase.
- 37. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating diabetes.
- 38. Use according to claim 37 wherein the diabetes is non-insulin-dependent diabetes or Type II diabetes.
- 39. Use according to any one of claims 37 or 38 wherein the compound is administered in an amount sufficient to inhibit GSK.

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- 40. Use according to claim 39 wherein the compound is administered in an amount sufficient to inhibit GSK3β.
- 41. Use of a compound according to any one of claims 1 to 21 in the preparation of a medicament for treating an inflammatory diseases or an infectious disease.
- 42. Use of a compound according to any one of claims 1 to 21 in an assay for identifying further candidate compounds capable of inhibiting one or more of a cyclin dependent kinase, aurora kinase, GSK and a PLK enzyme.
- 43. Use according to claim 38 wherein said assay is a competitive binding assay.
- 44. A process for preparing a compound of formula I as defined in claim 1, said process comprising reacting a compound of formula 9 with a compound of formula 10 to form a compound of formula I, wherein R¹⁻⁶ are as defined in claim 1

45. A process for preparing a compound of formula I as defined in claim 1, said process comprising reacting a compound of formula 15 with a compound of formula 3 to form a compound of formula I, wherein R¹⁻⁶ are as defined in claim 1